

66498

SOV/20-129-1-46/64

The Dependence of the Rate of Turbulent Burning on the Laminar Rate and Temperature of Burning

composition of the mixture. Turbulent burning is the propagation of pulsating inflammations caused by the turbulent mixing of fresh and burning gases. The rate of burning is determined by the ratio of the path of turbulent mixing of the two gases to the period of induction of inflammation. The relation  $U_T \sim 1/\tau_i$  is derived and from this the effective activation energy is estimated. Figure 4 shows the dependence of  $U_T$  on the temperature of burning for hydrogen - air and methane - air mixtures, respectively. In both cases the activation energy is approximately equal to the activation energy of the reaction  $H+O_2 \rightarrow OH+O$ . There are 4 figures and 11 references, 4 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: June 15, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: June 5, 1959  
Card 2/2

4

KARPOV, V. P., Cand Tech Sci (diss) -- "Investigation of the turbulent flame and combustion of gases". Moscow, 1960, published by the Acad Sci USSR. 12 pp  
(Acad Sci USSR, Inst of Chem Phys), 175 copies (KL, No 14, 1960, 132)

81408

S/020/60/132/06/33/068  
B004/B005

11.1000

AUTHORS: Karpov, V. P., Sokolik, A. S.TITLE: The Influence of Pressure on the Rate of Laminar and Turbulent Burning //PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 6,  
pp. 1341-1343

TEXT: For the rate of laminar burning, the authors write down equation (1):  
 $u_{\text{lam}} \sim p_0^{n/2-1}$  ( $n$  = order of the gross reaction in the flame), and discuss the deviating values for  $k = n/2 - 1$  indicated in Refs. 2-6. The experimental results represented in Fig. 1 show that combustion does not follow equations (2) and (3) at  $p_0 < 0.5$  atm abs. At reduced pressure, the temperature of combustion also decreases due to strong dissociation. The reduction of the rate of laminar burning in the pressure range investigated (0.4 - 1.76 atm abs) is assumed to be due to pressure reduction. The value 1.4 - 1.6 is indicated for  $n$  of equation (1). The results obtained in Refs. 4, 8-10, including papers by Doroshenko and Nikitskiy, are discussed

Card 1/2 X

81408

The Influence of Pressure on the Rate of Laminar and Turbulent Burning S/020/60/132/06/33/068  
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in a similar way. The authors' experimental results for the range of 0.5 - 1.76 atm abs give the equation  $u_{turb} \sim p^{0.3}$ ; but the combustion rates at low pressure deviate from this equation. This is explained by an increase in the induction period  $\tau_i$  of inflammation, and the reduction of the diffusion time  $t_o$  at low pressure. Therefore, the flame propagates irregularly as is shown by the photographs in Fig. 2. Under experimental conditions, a turbulent inflammation is impossible at  $\tau_i > t_o$ . There are 2 figures and 11 references: 6 Soviet and 5 English.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR  
(Institute of Chemical Physics of the Academy of Sciences,  
USSR)

PRESENTED: February 25, 1960, by V. N. Kondrat'yev, Academician

SUBMITTED: February 24, 1960

X

Card 2/2

11.7200  
11.1210

<sup>24058</sup>  
S/020/61/138/004/019/023  
B103/B203

AUTHORS: Karpov, V. P. and Sokolik, A. S.

TITLE: Relationship between self-ignition and rate of laminar and turbulent combustion of paraffin hydrocarbons

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 4, 1961, 874-876

TEXT: The authors compare the change of the laminar and turbulent burning rate of a mixture of methane, propane, or butane with air, with the delay of self-ignition as a function of mixture composition. For this purpose, they use a bomb of constant volume. In the case of methane, the delay decreases at 700-750°C in mixtures poor in methane, in the case of propane and butane, however, in mixtures rich in alkane (Ref. 3: A.S.Sokolik, Samovosplameneniye, plamya i detonatsiya v gazakh, Izd. AN SSSR, 1960 (Self-ignition, flame and detonation in gases)). This difference detected 30 years ago (Ref. 2: C. A. Naylor, R. W. Wheeler, Chem. Soc., 1931, 2456; 1933, 1240) has so far not been studied closely. In a new model of the turbulent flame, the burning rate is directly determined by the delay of ignition during the mixing of fresh and burning gas. The

Card 1/4

Relationship between self-ignition and ...

24058  
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B103/B203

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method of determining the turbulent burning rate was described earlier (by the authors and Ye. S. Semenov, DAN, 128, no. 6, 1220 (1959) (Ref. 4)). The laminar burning was determined on the basis of the recorded visible flame velocity  $u_{vis} = dr/dt$  from the equation  $u_{burn} \propto u_{vis}/\epsilon$ . The propagation degree  $\epsilon$  can be determined as  $\epsilon \approx T_{ad}/T_c$  by replacing the real temperature of the flame  $T_f$  by the calculated adiabatic temperature and neglecting the change of the molar ratio  $n/n_0$ . The resulting error does not exceed the error of measurement. For methane and higher alkanes, the authors find a great difference for mixtures rich in alkane: methane shows much lower normal burning rates and a lower upper limit of flame propagation than higher alkanes. The authors explain this difference only with the differing reaction rate in the flame which in propane and butane is much higher than in methane. The same difference is even greater at the rate of turbulent burning. In the authors' opinion, this parallelism must not be taken as a proof that turbulent burning proceeds in laminar flames. For mixtures poor in alkane, the rate of turbulent burning of methane is higher than that of the two higher alkanes. Besides, the

Card 2/4

24058

S/020/61/138/004/019/023

Relationship between self-ignition and ...

B103/B203

authors state that for mixtures rich in alkane the rate of turbulent burning is much lower in methane than in propane and butane, although the burning temperature of methane is higher than that of the higher alkanes. For these reasons, it is assumed that there are certain kinetic differences between methane and the higher alkanes which effect the above discrepancies. These kinetic differences are neither related to the stage of chain generation nor to the stage of chain branching. Therefore, it is assumed that the differing characteristics of self-ignition of methane and C<sub>3</sub>- and C<sub>4</sub> alkanes as a function of mixture composition are due to differences between these two alkane types in the stage of chain generation: the reaction rate rises in this stage with the impoverishment of the mixture in alkane in the case of methane, and with the enrichment of the mixture in the case of C<sub>3</sub>- and C<sub>4</sub> alkanes. Therefore, the authors recommend an investigation of the mechanism of this stage in self-ignition at higher temperatures and in the development of the reaction in flames. Besides, they conclude from the above results that the reaction in laminar and turbulent flames develops under similar conditions of the mixing of burning and fresh gas, i.e. according to a similar mechanism.

Card 3/4

24058

Relationship between self-ignition and ...

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B103/B203

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The propagation mechanism of the reaction, however, is different in principle: in laminar flames, it proceeds by uninterrupted molecular heat and substance transfer, in turbulent flames, however, by turbulent mixing. There are 3 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. One of the references to English-language publications is cited above, the other reads: Ref. 5: K.Wohl, L.Shore, Ind. and Eng.Chem., 47,828 (1955).

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: January 23, 1961, by V. N. Kondrat'yev, Academician

SUBMITTED: January 17, 1961

Card 4/4

30705

S/020/61/141/002/019/027  
B101/B147

11.7100

AUTHORS: Karpov, V. P., and Sokolik, A. S.

TITLE: Limits of ignition in turbulent gaseous mixtures

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 2, 1961, 393-396

TEXT: The difference between laminar and turbulent combustion, and the dependence of ignition on the degree of turbulence are discussed, and present a quantitative value for the probability of extinction of a turbulent flame. The paper is based on a study by A. S. Sokolik (Samovosplaneniye, plamya i detonatsiya v gazakh (Self-ignition, flame and detonation in gases) Izd. AN SSSR, 1960). Excitation of constant turbulence in a closed space has already been described (DAN, 129, no. 1, 168 (1959)). Results: 1) At constant energy of the capacitor spark, the concentration ranges of ignition are narrowed with increasing intensity ( $U_1$ ), or the lower limit of ignition rises with increasing pressure. Decreasing spark energy also narrows the concentration range of ignition. 2) In contrast to laminar combustion, the combustion rate in turbulence does not depend on the heat conductivity of the mixture. In a wide range, it is proportional to the

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Card 1/6

30705

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B101/B147

Limits of ignition in turbulent ...

intensity of turbulence. 3) Propane-oxygen and hydrogen-oxygen mixtures diluted with helium or argon showed that, in the presence of He, ignition occurs, at a turbulence lower than in the presence of Ar (Fig. 2). Also on increasing the spark energy by a factor of 20, the ignition limit for mixtures with He was lower than for mixtures with Ar. In H<sub>2</sub> - air mixtures (Fig. 4) with an excess of H<sub>2</sub> ignition occurred at a lower intensity of turbulence, although mixtures rich in air have a higher burning temperature (ratio  $\alpha = 0.17$ , burning temperature 1300°K; ratio  $\alpha = 5.6$ , burning temperature 860°C). 4) The nature of flame propagation is changed by turbulence. This was observed by schlieren cinematography. 5) The ratio between the real flame volume V<sub>f</sub> and the volume V<sub>m</sub> of the sphere, the radius of which is the longest flame tongue, is set up and V<sub>f</sub>/V<sub>m</sub> ≈ 0.35 is found to be the limit of ignition for all mixtures investigated. This value is a quantitative characteristic for the probability for extinction of a turbulent flame. 6) Therefrom it is concluded that pulsating combustion is impossible as soon as the time of mixing becomes shorter than the induction period of ignition:  $t_o = l_1/U' < \tau_i$ . With increasing root-mean square value of the intensity U<sub>2</sub>

Card 2/6 X

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E101/B147

Limits of ignition in turbulent ...

of turbulence, the probability increases until the inequality becomes valid. There are 4 figures and 6 references: 5 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: Kimura Itsuro, Kumagai Seiichiro, J. Phys. Soc. Japan, no. 5, 599 (1956).

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: June 20, 1961, by V. N. Kondrat'yev, Academician

SUBMITTED: June 20, 1961

Card 3/8

KARPOV, V.P.; SHERSTNYAKOV, V.F.

Determining phase permeabilities from field data. Nauchno-  
tekh.sbor.po dob.nefti no. 18:36-42 '62. (MIRA 17:6)

KOGAN, L.G.; KARPOV, V.P.

Effect of the relationship between the viscosities of  
the displaced and displacing fluids on the conformance  
factor in a pattern system of oil-field development.  
Nauch.-tekhn. sbcr. po dob. nefti no.21:48-50 '63.

(MIRA 17:5)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy  
institut.

KOGAN, L.G.; KARPOV, V.P.

Electric modeling of propane drive with subsequent injection  
of dry gas for a nine-point system of well spacing. Trudy  
VNIT no.40 f167-181 '63 (MRA 17:7)

Effect of the nonuniformity of reservoir structure with respect  
to permeability on the conformance factor and other parameters  
of development. Ibid. f182-191

ANISIMOV, A.P.; KOGAN, L.G.; KARPOV, V.P.

Determining on electric models the effect of the withdrawal of oil through observation wells with the injection of liquefied gases.

Nauk.-tekhn. sbor. po dob. nefti no.25:93-96 (v.1)

(MIRA 17:12)

1. Ussoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

ACCESSION NR: AP4041761

S/0076/64/038/006/1660/1662

AUTHOR: Karpov, V. P.; Sokolik, A. S.

TITLE: Laminar and turbulent flames from hydrazine decomposition

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 6, 1964, 1660-1662

TOPIC TAGS: hydrazine decomposition, rocket fuel, laminar flame, turbulent flame

ABSTRACT: The burning velocities of laminar and turbulent flames from hydrazine decomposition were determined as a function of pressure and temperature (1500—1900K) by Schlieren photography and oscillographic pressure recording in a duraluminum bomb equipped with mixing propellers and sight windows. The reaction rates of the laminar and turbulent flames were calculated on the basis of the thermal combustion theory and the pulsating combustion model, respectively. It was found that the kinetic characteristics are identical for both types of flame. The results provide evidence supporting the correctness of the pulsating model for turbulent combustion. Orig. art. hrs: 4 figures and 8 formulas.

Card 1/2

ACCESSION NR: AP4041761

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki  
(Academy of Sciences SSSR, Institute of Chemical Physics)

SUBMITTED: 25Jun63 ATD PRESS: 3048

ENCL: 00

SUB CODE: FPR

NO REF Sov: 005

OTHER: 005

Card: 2/2

KARPOV, V.P. (Odessa 6, ul. Saltykova-Shchedrina d.32).

Electromyographic measurements in balneologic treatment of children  
with cerebral spastic paralyses. Ortop., travm. i protez. 26 no.7:  
9-12 Jl '65. (MIRA 18;7)

1. Iz Odesskogo detskogo sanatoriya "Khadzhibey" (glavnnyy vrach ..  
I.N.Znobey).

KOKURICHEV, P.I., prof.; MIKHAYLOV, N.P., veterinarnyy vrach; KARPOV, V.P.;  
MOSKALEVA, Ye.G., veterinarnyy tekhnik; VOLKOVA, A.S., veterinarnyy  
tekhnik; MASHUKOV, M.I.

Selenium preparations in the prophylaxis of diseases in lambs  
and young pigs. Veterinaria 41 no.8:65-67 Ag '64.

(MIRA 18:4)

1. Leningradskiy veterinarnyy institut (for Kokurichev, Mikhaylov).
2. Glavnnyy veterinarnyy vrach sovkhoza "Leninskiy Irkutskoy oblasti  
(for Moskaleva, Volkova). 4. Glavnnyy zootekhnik sovkhoza "Len-  
ninskiy" Irkutskoy oblasti (for Mashukov).

L 14570-66 EWT(m)/EWP(f)/T/ETC(m)-6 WW/JW/JWD/WE  
ACC NR: AP6004434

SOURCE CODE: UR/0414/65/000/003/0068/0074

AUTHOR: Karpov, V. P. (Moscow)

ORG: none

TITLE: Cellular flame structure under conditions of a constant volume bomb and its connection with oscillatory combustion

SOURCE: Fizika gorenija i vzryva, no. 3, 1965, 68-74

TOPIC TAGS: combustion, combustion instability, spherical flame, flame structure, gas combustion

ABSTRACT: To study the relationship between the flame structure and the occurrence of oscillatory combustion in homogenous gas mixtures, experiments were made in a spherical constant-volume bomb in which the mixture was ignited at the center and the combustion process was studied by pressure recordings and schlieren photography at 4000 frames per second. The results showed that the oscillatory combustion with the maximum pressure fluctuation amplitudes occurred with hydrogen-air mixtures at an air excess factor  $\alpha = 2.25 - 2.5$  in lean mixtures, and with propane- or butane-air mixtures at  $\alpha = 0.7$  in rich mixtures. With methane mixtures, the maximum pulsation amplitudes were observed at close to a stoichiometric composition ( $\alpha = 1 - 1.1$ ). The schlieren

Card 1/3

UDC: 536.46

L 14570-66

ACC NR: AP6004434

photographs showed that mixtures giving oscillatory combustion had a cellular flame structure. Therefore, a direct connection between cellular flame structure and the occurrence of oscillatory combustion seemed to be indicated. To investigate the effect of acoustic oscillations on the flame front, special experiments were carried out in a spherical bomb which was equipped with a conical tube closed at the end by a membrane to separate the contents of the tube from the contents of the bomb. The tube was filled with a hydrogen-oxygen mixture which was ignited simultaneously with the mixture in the bomb. The pulsations generated by the combustion of the hydrogen-air mixture were transmitted through the membrane into the mixture burning in the bomb. These experiments showed that the pressure oscillations in the bomb induced by the membrane remained unchanged whether they acted upon a burning mixture or an inert gas. In some cases, however, i.e., with hydrogen-air mixtures, strong pulsations were induced after attenuation of the forced pulsations. This is explained by the fact that acoustic waves probably cause a break-up of the flame front when the flame has a cellular structure. Flames which do not have a cellular structure are not affected by acoustic oscillations. The fact that maximum pressure oscillations occur at a given fuel-air ratio is explained by selective diffusion of the components. It was also found that the instability of spherical flames is independent of the Reynolds number and, therefore, this phenomenon is not connected with self-turbuliza-

Card 2/3

L 14570-66

ACC NR: AP6004434

tion. The reason for the break-up of the flame fronts only with flames having a cellular structure cannot presently be explained. Orig. art. has: 5 figures.

[PV]

SUB CODE: 21/ SUBM DATE: 12Apr65/ ORIG REF: 003/ OTH REF: 005  
ATD PRESS: 4190

Card 3/3

VSEVOLOZHSKIY, V.A., aspirant; KARPOVA, V.P.

Conditions governing the formation of the runoff in depth  
of the upper zone of the intensive water exchange in the  
northern part of the European U.S.S.R. Izv. vys. ucheb. zav.;  
geol. i razv. 7 no.9:91-101 S '64.

(MIRA 17:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KARPOV, V.R.

Changing the design of the spindle of a lathe. Sbor.rats.predl.  
vnedr.v prcizv. no.5:70 '60. (MIRA 14:8)

1. Stalinskiy metallurgicheskiy zavod.  
(Lathes)

KARPOV, V.S.; ZHIDETSKIY, D.P.

Schedule for an accelerated method of feeding hot metal to soaking pits of a roll mill. Metallurg 2 no.7:24-26 Jl '57. (MIRA 10:8)

1. Nachal'nik tsekh podgotovki sostavov (for Karpov). 2. Nachal'nik laboratorii organizatsii proizvodstva i truda, Makeyevskiy metallurgicheskiy zavod (for Zhidetskiy).  
(Rolling mills) (Steel ingots)

FEDOTOV, L.Ie.; YEVSTAF'YEV, S.G.; VOROB'YEV, V.V.; KARPOV, V.S.;  
VEYSMAN, I.A.

Welding bus bar compensators. Avtom.svar. 13 no.7:87-90  
(MIRA 13:7)  
Jl '60.

1. Trest "Gidroelektromontazh" (for Veysman). 2. Leningradskiy  
filial instituta "Orgenergostroy" (for all except Veysman).  
(Bus conductors(Electricity)--Welding)

FEDOTOV, L.Ye., inzh.; KARPOV, V.S., tekhnik

Semiautomatic argon-arc welding of aluminum busbars by means  
of a consumable electrode. Svar. proizv. no.12:20-22 D '62.  
(MIRA 15:12)

1. Leningradskiy filial Vsesoyuznogo institut po proyektirovaniyu  
organizatsiy energeticheskogo stroitel'stva.  
(Bus conductors (Electricity)--Welding)  
(Aluminum--Welding)

KARPOV, Vladimir Timofeyevich, kandidat ekonomicheskikh nauk; BYAKIN, A.S., redaktor; TRUSHKINA, T.M., tekhnicheskiy redaktor

[Industrial development of Irkutsk Province] Industrial'noe razvitiye Irkutskoi oblasti. Irkutsk, Irkutskoe knizhnoe izd-vo, 1955. 55 p. [Microfilm] (MLRA 10:7)

1. Chlen Vsesoyuznogo obshchestva po rasprostraneniyu politicheskikh i nauchnykh znanii (for Karpov)  
(Irkutsk Province--Industries)

KARPOV, Vladimir Timofeyevich; FRIDMAN, V.G., red.; SOROKINA, T.I.,  
tekhn.red.

[Bratsk Hydroelectric Power Station] Bratskaja GES. [Irkutsk]  
Irkutskoe knizhnoe izd-vo, 1957. 32 p. (MIRA 11:4)  
(Bratsk Hydroelectric Power Station)

KARPOV, V. T.

Karpov, V. T.

"Investigation of the properties of cast-iron sheet obtained by the method  
of ingotless rolling." Moscow Inst of National Economy imeni V. V.  
Plekhanov. Moscow, 1956. (Dissertation for the Degree of Candidate in  
Technical Sciences)

So: Knizhnaya letopis'  
No. 25, 1956. Moscow

MAKOKLIN, I.A.; VERNIDUB, I.I.; ZHVANKO, Yu.N.; KARPOV, V.T.;  
RAZUMOVSKAYA, G.S.; VOL'KHOVSKAYA, A.A.

Kinetics of the oxidation of fine magnesium powders at high  
temperatures. Zhur.prikl.khim. 33 no.4:824-831 Ap '60.

l. Moskovskiy ordena Trudovogo Krasnogo Znameni institut  
narodnogo khozyaystva imeni G.V.Plekhanova.  
(Magnesium) (Powder metallurgy) (Oxidation)  
(MIRA 13:9)

NEKRYTYY, S.S. [deceased]; KARPOV, V.T.

Factors in the corrosion-resistance of cast iron. Lit.  
proizv. no. 8:35-37 Ag '61. (MIRA 14:7)  
(Cast iron—Corrosion)

35819

S/137/62/000/004/123/201  
A060/A101

10.1245

AUTHORS: Makolkin, I. A., Karpov, V. T.

TITLE: Influence of heat-treatment upon the characteristics of articles made of magnesium alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 64, abstract 41381 ("Sb. nauchn. rabot. Mosk. in-t nar. kh-va", 1961, no. 20, 113-123)

TEXT: An investigation was carried out as to the effect of temperature and soaking duration in the course of homogenizing upon the changes in the mechanical characteristics and the electrical resistance of the alloy ML-5 (ML-5). The heat-treatment was conducted according to two schedules: 1) homogenizing at  $415 \pm 5^{\circ}\text{C}$  and aging at  $175 \pm 5^{\circ}\text{C}$ ; 2) homogenizing at  $425 \pm 5^{\circ}\text{C}$  and aging at  $200 \pm 5^{\circ}\text{C}$ . It is indicated that the carrying out of the homogenization at the temperature of  $425 \pm 5^{\circ}\text{C}$  instead of at  $415 \pm 5^{\circ}\text{C}$  leads to a more intensive dissolution of the  $\beta$ -phase which makes it possible to reduce the time of heat-treatment of the ML-5 alloy. When homogenizing at  $415 \pm 5^{\circ}\text{C}$  the maximum mechanical characteristics ( $\sigma_b$  25 - 26 kg/mm<sup>2</sup>,  $\sigma_{0.2}$  11 - 12 kg/mm<sup>2</sup>) are attained in 16 hours of soaking, whereas when homogenizing at  $425 \pm 5^{\circ}\text{C}$  - in 8 hours. ✓

Card 1/2

Influence of heat-treatment ...

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A060/A101

Analogously, the aging at  $175 \pm 5^{\circ}\text{C}$  ensures the obtaining of  $\delta_b \approx 27 \text{ kg/mm}^2$  and  $\delta_0.2 \approx 17.1 \text{ kg/mm}^2$  in 16 hours of soaking, whereas aging at  $200 \pm 5^{\circ}\text{C}$  yields the same results in 10 hours. A reduction of the soaking duration in the process of homogenizing may be attained both on account of reducing the grain size of the starting material, and on account of raising the homogenizing temperature, and both of these factors have a decisive influence in shortening the homogenizing schedule. When the temperature is increased from 415 to  $525 \pm 5^{\circ}\text{C}$  the homogenizing time for the alloy with coarse grain may be shortened from 16 to 8-9 hours.

E. Nepomnyashchaya

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/005/126/150  
A160/A101

AUTHORS: Karpov, V. T., Biryukova, Z. D., Makolkin, I. A.

TITLE: Ways of hardening steel products

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 132, abstract 51800 ("Sb. nauchn. rabot. Mosk. in-t nar. kh-va", 1961, no. 20, 124 - 132)

TEXT: It was intended to investigate thermodynamically the possibility of direct chemical reaction of metals (entering the steels) with prussic acid which develops during gaseous cyanidation and ultimately causes the formation of carbides and nitrides of metals, hardening the steel. Simultaneously with the saturation of the steel with nitrogen and carbon (during the gaseous cyanidation in a mixture of CH<sub>4</sub>, CO and NH<sub>3</sub> gases at 800 - 900°C) a reaction of NH<sub>3</sub> with C-containing gases occurs in the muffle of the furnace by the following equations: CH<sub>4</sub> (gas) + NH<sub>3</sub> (gas) = HCN (gas) + 3H<sub>2</sub> (gas); CO (gas) + NH<sub>3</sub> (gas) = HCN (gas) + H<sub>2</sub>O (gas). It is assumed that the prussic acid thermally decomposes by the equation HCN (gas) = N (gas) + H (gas) + C (solid) and the developing N and C

Card 1/2

Ways of hardening steel products

S/137/62/000/C05/126/130  
A160/A101

atoms cause an additional saturation of the steel with nitrogen and carbon. The reaction between the prussic acid (prior to decomposition) and the metals likely proceeds by the following scheme:  $xM_e$  (sol.) +  $yHCN$  (gas) =  $M_eC$  (sol.) +  $+ M_eN_y$  (sol.). Computed were the main thermodynamical values ( $\Delta H$  and  $\Delta E$ ) in the temperature range of 800 - 1,200°K for the processes in which the carbides and nitrides of metals are simultaneously formed. It was established that during the gaseous cyanidation of complex alloys and steel on Fe-base, together with the processes of their saturation with the atomic N and C at the expense of the partial thermal decomposition of  $CH_4$ ,  $CO$ ,  $NH_3$  and  $HCN$ , reactions between the prussic acid and the metal components of the steel are thermodynamically possible. During the process of reactions between  $HCN$  and the metals, the following carbides and nitrides of metals are formed:  $Fe$  -  $FeC$ ,  $Fe_3C$ ,  $Fe_2N$ ,  $Fe_4N$ ;  $Al$  -  $AlN$ ,  $Al_3C$ ;  $Cr$  -  $Cr_4C$ ,  $Cr_3C_2$ ,  $Cr_7C_3$ ,  $CrN$ ;  $Mn$  -  $Mn_3C$ ,  $Mn_3N_2$ ,  $Mn_2N$ ,  $Mn_2N_2$ ,  $Mn_2N_3$ ;  $Ti$  -  $TiC$ ,  $TiN$  and  $Si$  -  $SiC$ ,  $Si_3N_4$ . These carbides and nitrides considerably harden the steel and increase the wear-resistance of steel parts. There are 9 references.

[Abstracter's note: Complete translation]

A. Babayeva

Card 2/2

KARPOV, Vladimir Timofeyevich, kand. ekon. nauk; FRIEDMAN, V.C.,  
red.

[The Angara-Yenisey series] Angaro-Eniseiskii kaskad. Irkuts,  
Irkutskoe knizhnoe izd-vo, 1962. 58 p. (MIRA 18:3)

VINOGRAD, L.Kh.; KARPOV, V.V.; SHALIMOVA, G.V.

2-anilino-1,4-naphthoquinones. Zhur. prikl. khim. 34 no. 12:2775-2779  
D 61.  
(MIRA 15:1)

1. Rubezhanskiy filial Gosudarstvennogo nauchno-issledovatel'skogo  
instituta organicheskikh poluproduktov i krasiteley.  
(Naphthoquinone)

SOROKIN, P.P., kand. tekhn. nauk; TSUKERMAN, N.Ya., inzh. Prinimal  
uchastiye PRUDENTOV, A.I., inzh.; KARPOV, V.V., kand. tekhn.  
nauk, nauchnyy red.; ZHURAVSKIY, N.A., red. izd-va;  
PUL'KINA, Ye.A., tekhn. red.

[Piling] Svainye raboty. Leningrad, Gos. izd-vo lit-ry po  
stroit., arkhit. i stroit. materialam, 1961. 213 p.

(MIRA 15:3)

(Piling (Civil engineering))

KARPOV, Vladimir Vasil'yevich, polkovnik, Geroy Sovetskogo Soyuza;  
ZHIGALOV, I.M., red.; MASLOVA, N.Ya., tekhn. red.

[Regimental leading lights; sketches] Polkovye maiaki; ocher-  
ki. Moskva, Voenizdat, 1962. 93 p. (MIRA 15:7)  
(Russia--Army--Military life)

KARPOV, V.V. (Yaroslavl')

Conference on problems in industrial psychology, industrial training and education. Vop. psichol. 8 no.3:190 My-Je '62.  
(MIRA 15:6)  
(Psychology, Industrial--Congresses)  
(Technical education--Congresses)

NIKOLAYEV, Aleksandr Sergeyevich; KARPOV, V.V., red.; TELYASHOV,  
R.Kh., red.izd-va; BELOGUROVA, I.A., tekhn. red.

[Silicate paints] Silikatnye kraski. Leningrad, Ob-vo po  
rasprostraneniuu politicheskikh i nauchn. znanii RSFSR,  
1963. 19 p. (Leningradskii dom nauchno-tekhnicheskoi pro-  
pagandy. Obmen peredovym opytom. Seriya: Stroitel'nye ma-  
terialy, no.2)

(MIRA 16:7)

(Paints)

SHEYNN, S.M.; GOLOMB, L.M.; KARPOV, V.V.

Dyeing properties of derivatives of nitrodiphenylamine containing trifluoromethyl and trifluoromethylsulfonyl groups. Ukr. khim. zhur. 29 no.7:738-740 '63. (MIRA 16:8)

Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley, filial v g. Rubezhnoye.  
(Diphenylamine) (Dyes and dyeing)

GERASIMENKO, Yu.Ye.; BAKULINA, G.G.; KARPOV, V.V.

Asymmetric indigoid dyes. Part 1: Unusual transformation of  
2-thionaphthene-3'-(N-carboxymethyl') indolindigo. Zhur. ob. kkim.  
33 no.6:1988-1991 Je '63. (MIRA 16:7)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov  
i krasiteley, filial v g. Rubezhnoye.  
(Benzothiophene) (Indole) (Indigo)

KARPOV, V.V.; GOLOMB, L.M.

Dyeing of polyacrylonitrile fibers with vat dyes. Tekst.pron.  
22 no.8:54-56 Ag '62. (MIRA 15:8)

1. Sotrudniki Rubezhanskogo filiala Nauchno-issledovatel'skogo  
instituta organicheskikh poluproduktov i krasiteley (NIOPIK).  
(Textile fibers, Synthetic) (Dyes and dyeing)

GODES, Emmanuil Grigor'yevich; KARPOV, V.V., kand. tekhn. nauk,  
nauchnyy red.; ROTENBERG, A.S., red. izd-va; PUL'KINA, Ye.A.,  
tekhn. red.

[Construction of intakes] Opyt stroitel'stva vodozabornykh so-  
oruzhenii. Leningrad, Gosstroizdat, 1962. 189 p.

(MIRA 15:12)

(Intakes (Hydraulic engineering))

KARPOV, V. V.

Carrier dyeing of lavsan. Tekst. prom. 23 no. 3:70-72 Mr '63.  
(MIRA 16:4)

1. Sotrudnik Rubezhanskogo filiala Nauchno-issledovatel'skogo  
instituta organicheskikh poluproduktov i krasiteley (NIOPiK).

(Dyes and dyeing) (Synthetic fabrics)

GVOZDETSKIY, L.A., inzh.; GORBANENKO, A.D., kand.tekhn.nauk; KARPOV,  
V.V., inzh.; KRASNOSELOV, G.K., inzh.; TSIRUL'NIKOV, L.M., inzh.

Burning of Arlan petroleum with increased stabilization in boiler  
furnaces. Elek. sta. 33 no.10:22-25 0 '62. (MIRA 16:1)  
(Boilers) (Petroleum as fuel)

IL'IN, A.M.; SKAKUN, G.P.; KARPDV, V.V.

Work practices in open pits of the Vyaokaya Mountain Mining Administration.  
Gor. zhur. no.4:20-23 Ap '63. (MIRA 16:4)  
(Sverdlovsk Province--Strip mining)

KARPOV, V.V.; ABOZIN, V.G.

Sorption of leucoindigo and leucothioindigo by various substrata.  
Zhur.VKHO 9 no.1:117-119 '64. (MIRA 17:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KARPOV, V. V.

Karpov, V. V. "Methods of preventing house gas-pipe lines from freezing,"  
Sbornik materialov po kommunal. khoz-vu, No. 5, 1948, p. 45-50

SO: U-2888, "etopis 'hurnal'nykh Statey, No. 1, 1949

KARPOV, V. V.

Karпов, В. В. "The freezing to the ground of the bitumen insulation of gas pipes", Sbornik materialov po gornym. khoz-vu, No. 6, 1948, p. 29-33.

SO: U-3261. 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 11, 1950).

KARPOV, Val'ter Valentinovich, kand. tekhn. nauk; USPENSKIY, V.V., inzh., red.;  
ROTEMBERG, A.S., red. izd-va; PUL'KINA, Ye.A., tekhn. red.

[Contribution of innovators in the Leningrad construction industry]  
Vklad novatorov leningrdskikh stroek, Leningrad, Gos. izd-vo lit-ry  
po stroit., arkhit. i stroit. materialam, 1953. 34 p. (MIRA 11:7)  
(Leningrad--Building)

KARPOV, V.V.

ALFEROV, Aleksey Stepanovich; KARPOV, V.V., kandidat tekhnicheskikh nauk,  
redaktor; PUL'KINA, Ye.A., tekhnicheskiiy nauk.

[Seamless cornices and sectional molding of I.P. Iliukhin's con-  
struction] Tsel'notianutye karnizy i sbornye otkosy konstruktsii  
I.P. Iliukhina. Leningrad, Gos.izd-vo lit-ry po stroit. i arkhit.  
1954. 26 p. (MLRA 8:8)

(Cornices) (Moldings)

KARPOV, V.V., kandidat tekhnicheskikh nauk; SHAL'NOV, A.P., redaktor;  
IOSELEVICH, L.Ye., redaktor; KONYASHINA, A.D., tekhnicheskiy re-  
daktor.

[Laying gas pipes] Stroitel'nye raboty pri prokladke gazoprovodov.  
Izd. 2-e, Moskva, Izd-vo Ministerstva komunal'nogo khoziaistva  
RSFSR, 1954. 142 p.  
(Gas pipes) (MLRA 8:1)

YAKOVLEV, Aleksey Vasil'yevich: kandidat tekhnicheskikh nauk; KARPOV, V.V.  
kandidat tekhnicheskikh nauk, redaktor; KAPLAN, M.Ya, redaktor;  
PUL'KIN, Ye.A., tekhnicheskiy redaktor.

[Precast concrete paving for roads] Sborno-izazbornye zhelezobeton-  
nye dorozhnye pokrytiia. Leningrad, Gos.izd-volit-ry po stroit.  
i arkhit., 1955. 83 p. (MLRA 8:8)  
(Road construction)

Б.И.А.П.У.М.В.  
NIKOLAYEV, Aleksey Ivanovich, professor, doktor tekhnicheskikh nauk;  
KARPOV. V.V., kandidat tekhnicheskikh nauk, redaktor; KAPLAN,  
M. Ya, redaktor; PUL'KINA, Ye.A. tekhnicheskiy redaktor.

[Protection of subsurface building structures from the action  
of moisture] Zashchita podzemnykh konstruktsii zdaniy ot vozdei-  
stviia vлаги. Leningrad, Gos. izd-vo lit-ry po stroitel'stvu i  
arkhitekture, 1955. 174 p. (MLRA 8:8)  
(Water, Underground) (Waterproofing)

FILIPPOV, Nikolay Aleksandrovich, kamenshchik-novator; KARPOV, V.V.,  
kandidat tekhnicheskikh nauk, nauchnyy redaktor; KAPLAN, M.Ya.,  
redaktor izdatel'stva; PUL'KINA, Ye.A., tekhnicheskiy redaktor

[Mixed team in construction of large block foundations] Kompleksnaya  
brigada na montazhe krupnoblochnykh fundamentov. Leningrad, Gos.  
izd-vo lit-ry po stot. i arkhitekture, 1956. 21 p. (MIRA 9:9)  
(Foundations)

KARPOV, V.V.

RYBAKOV, Mikhail Iosifovich, inzhener; KARPOV, V.V., kandidat tekhnicheskikh nauk, nauchnyy redaktor; ROTENBERG, A.S., redaktor izdatel'stva; PUL'KINA, Ye.A., tekhnicheskiy redaktor.

[Manufacturing staircases and landings by rapid assembly-line methods] Preisvodstvo lestnichnykh marshei i ploshchadok potochno-skorostnym metodom. Leningrad, Gos.izd-vo lit-ry po stroit. i arkhit., 1956. 30 p. (MLRA 10:7)

1. Leningradskiy stroitel'nyy treat No.20 (for Rybakov)  
(Staircases)

KARPOV, P. V.

CHUDINOV, Pavel Grigor'yevich; KARPOV, V. V., kandidat tekhnicheskikh  
nauk, nauchnyy redaktor; ROTENBERG, A. S., redaktor izdatel'stva;  
PYL'KINA, Ye. A., tekhnicheskiy rezhaktor.

[Combined work teams for erecting large block apartment houses]  
Kompleksnaya brigada na montazhe krupnozaryazhnykh zhilykh domov.  
Leningrad, Gos.izd-vo lit-ry po stroi. i arkit., 1957. 32 p.  
(MLRA 10:6)

(Precast concrete construction)  
(Apartment houses)

KARPOV, V.V.

AFANAS'YEV, Nikolay Petrovich; KARPOV, V.V., kandidat tekhnicheskikh nauk,  
nauchnyy redaktor; ROTENBERG, A.S., redaktor izdatel'stva;  
PUL'KINA, Ye.A., tekhnicheskiy redaktor

[Universal dovetailing and milling machine] Universal'nyi shiporezno-  
frezernyi stanok. Leningrad, Gos. izd-vo lit-ry po stroit. i arkhit.,  
1957. 29 p.  
(Woodworking machinery)

PESHKOVSKIY, Oleg Ivanovich; KARPOV, V.V., kand.tekhn.nauk, nauchnyy red.;  
KAPLAN, M.Ya., red.izd-va; PUL'KINA, Ye.A., tekhn.red.

[Steel forms used for structural elements and components] Stal'nye  
formy dlia izgotovleniya stroitel'nykh konstruktsii i detalei.  
Leningrad, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 126 p.  
(Precast concrete) (MIRA 11:2)

LORBERG, Martin Gustavovich.; KARPOV, V.V., kand. tekhn. nauk; nauchnyy red.;  
KAPLAN, M.Ya., red. izd-va.; PUL'KINA, E.A., tekhn. red.

[Using vibration in transporting concrete mixes] Vibrotransportirovaniye  
betonnoi smesi. Leningrad, Gos. izd-vo lit-ry po stroit., arkhit. i  
stroit. materialam, 1958. 67 p. (MIRA 11:10)  
(Vibrators)  
(Concrete--Transportation)

MALYSHEV, Dmitriy Iosifovich, KARPOV, V.V., kand.tekhn.nauk, red.; ROTZINBERG, A.S.  
red.izd-va., PUL'KINA, Ye.A. tekhn.red.

[Production of concrete and reinforced concrete parts in construction yards] Izdotovlenie betonnykh i zhelezobetonnykh izdelii na  
poligonakh. Leningrad, Gos. izd-vo lit-ry po stroit., arkhit. i stroit  
materialam, 1958. 79 p. (MIRA 11:9)

(Precast concrete)

KARPOV, Val'ter Valentinovich; LEPIN, A.E., red.; SMIRNOV, P.S., tekhn.red.

[Combined laying of walls and thin-spread plastering] Sovmehchenie  
kladki sten s tonkosloinym oshtukaturivaniem. Lenizdat, 1958. 97 p.  
(MIRA 12:4)

(Bricklaying) (Plastering)

TOPOLYANSKIY, Abram Borisovich; KARPOV, V. V., inzh., nauchnyy red.;  
KAPLAN, M. Ya., red. izd-va; PUL'KINA, Ye. A., tekhn. red.

[Standard and unit items of electrical equipment used in construction] Inventarnye i komplektnye elektroustroistva v stroitel'stve. Leningrad, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1958. 138 p.  
(Building machinery) (Electric apparatus and appliances)

(MIRA 11:9)

ONUFRIYEV, Nikolay Mikhaylovich, dots., kand. tekhn. nauk; KARPOV, V.V.,  
kand. tekhn. nauk, nauchnyy red.; KAPLAN, M.Ya., red. izd-va;  
PUL'KINA, Ye.A., telchn. red.

[Simple methods of strengthening reinforced concrete elements of  
industrial buildings] Prostye sposoby usileniya zhelezobetonnykh  
konstruktsii promyshlennykh zdaniy. Leningrad, Gos. izd-vo lit-ry  
po stroit., arkhit. i stroit. materialam, 1958. 175 p. (MIRA 11:8)  
(Building--Repair and reconstruction)  
(Reinforced concrete)

KARPOV, V.V.

YAKOVLEV, Aleksey Vasil'yevich, kand.tekhn.nauk; KARPOV, V.V., kand.tekhn.  
nauk, nauchnyy red.; KAPLAN, M.Ya., red.izd-va; PUL'KINA, Ye.A.,  
tekhn.red.

[Precast reinforced concrete pavement for roads; characteristics  
of construction of pavements and experience in using them in road  
building] Shorno-razbornye zhelezobetonnye dorozhnye pokrytiia;  
kharakteristika konstruktsii pokrytii i optyt ikh primenenia v  
stroitel'stve. Leningrad, Gos. izd-vo lit-ry po stroit. i arkhit.,  
1958. 147 p.

(Roads, Concrete)  
(Precast concrete construction)

DAVIDSON, M.G., doktor tekhn.nauk; DALMATOV, B.I., doktor tekhn.nauk;  
KARPOV, V.V., kand.tekhn.nauk, nauchnyy red.; KAPLAN, M.Ya.,  
red.izd-va; VORONETSKAYA, L.V., tekhn.red.

[Deformations of buildings and their prevention; measures for  
winter conditions]. Deformatsii zdanii i mery ikh preduprezhde-  
niia (primenitel'no k simnim usloviiam). Leningrad, Gos. izd-vo  
lit-ry po stroit., arkhit. i stroit. materialam, 1958. 205 p.  
(Building--Cold weather conditions) (MIRA 12:2)

DREMYATSKIY, N.S.; KARPOV, V.V.; VOLOTSKOY, N.V., kand.tekhn.nauk,  
retsenzent; KLEYN, P.N., inzh., ratsenzent; NAVYAZHSKIY,  
L.G., red.; KAPLAN, M.Ya., red.izd-va; PUL'KINA, Ye.A.,  
tekhn.red.

[Handbook for electrical engineers for residences and  
public buildings. Edited by L.G.Naviazhskii] Spravochnik  
projektirovshchika-elektrika zhilykh i grazhdanskikh zdanii.  
Pod red. L.G.Naviazhskogo. Leningrad, Gos.izd-vo lit.-ry po  
stroit., arkhit. i stroit.materiamam, 1959. 247 p.

(MIRA 13:1)

(Electric engineering--Handbooks, manuals, etc.)

GOLOMB, L.M.; KARPOV, V.V.

Use of photometry in the analysis of dyes for acetate fabrics  
and synthetic fibers. Tekst.prom. 19 no.8:41-43 Ag '59.  
(MIRA 13:1)

(Dyes and dyeing--Chemistry) (Photometry)

STABNIKOV, Vasiliy Nikolayevich, doktor tekhn.nauk; LIVSHITS, Vladimir Yakovlevich, inzh.-khimik; KARPOV, V.V., kand.tekhn.nauk, nauchnyy red.; KAPLAN, M.Ia., red.izd-va; PUL'KINA, Ye.A., tekhn.red.

[Antisepticizing wood in construction] Antiseptirovanie drevessiny na stroitel'stve. Leningrad, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 102 p. (MIRA 13:4)  
(Wood--Preservation)

SAPOZHNIKOV, Mikhail Mikhaylovich, kand.tekhn.nauk; KARPOV, V.V., kand.  
tekhn.nauk, nauchnyy red.; KAPLAN, M.Ya., red.izd-va; PUL'KINA,  
Ye.A., tekhn.red.

[Manual for pipe fitters] Spravochnik truboprovodchika. Lenin-  
grad, Gos.izd-vo lit-ry po stroit., arkhit..i stroit.materialam,  
1960. 213 p. (MIRA 13:12)  
(Pipe fitting)

GOLOMB, L.M.; KARPOV, V.V.

Photometric method for determining iron in vat dyes and other  
dyestuffs. Khim. volok. no. 6:55-56 '60. (MIRA 13:12)

1. Rubezhanskiy filial Nauchno-issledovatel'skogo instituta  
organicheskikh poluproduktov i krasiteley.  
(Dyes and dyeing) (Iron--Analysis)

KARPOV, V.V., kand.tekhn.nauk; MEYTUS, M.E., kand.tekhn.nauk; TSUKERMAN,  
N.Ya., inzh.; BELOLIKOV, V.N., inzh., nauchnyy red.; GREYTS, B.V.,  
inzh., nauchnyy red.; KULIKOV, M.G., inzh., nauchnyy red.;  
FEDORTSOV, B.D., inzh., nauchnyy red.; GRIGOR'YEVA, I.B., red.izd-va;  
VORONETSKAYA, L.V., tekhn.red.

[Roofing and waterproofing operations; reference manual] Krovel'nye  
i gidroizoliatsionnye raboty; spravochnoe posobie. Pod obshchei  
red. V.V.Karpova. Leningrad, Gos.izd-vo lit-ry po stroit., arkhit.  
i stroit.materialam, 1961. 302 p. (MIRA 14:6)

(Roofing) (Waterproofing)

DERYABIN, Ivan Makedonovich; KARPOV, V.V., kand. tekhn. nau<sup>uk</sup>,  
nauchnyy red.; DNEPROVA, N.N., red. izd-va; CHERKASSKAYA,  
F.T., tekhn. red.

[Planning the organization of construction; practices of  
the Main Administration for Housing and Public Construction  
in the City of Leningrad] Proektirovanie organizatsii stroitel'-  
stva; iz opyta Glavleningradstroia. Leningrad, Gosstroizdat,  
1962. 67 p. (MIRA 15:7)

(Construction industry--Production methods)

USPENSKIY, Viktor Vasil'yevich; LANTSOV, V.A., kand.tekhn. nauk,  
retsenzent; KARPOV, V.V., kand.tekhn. nauk, nauchnyy red.;  
ROSENBERG, A.S., red. izd-va; CHERKASSKAYA, F.T., tekhn.  
red.

[Growth potentials of labor productivity in housing construction;  
from practices used in Leningrad] Rezervy rosta proizvoditel'-  
nosti truda v zhilishchnom stroitel'stve; iz optya Leningrada.  
Leningrad, Gosstroizdat, 1962. 139 p. (MIRA 15:7)

(Construction industry--Labor productivity)  
(Leningrad--Apartment houses)

GOLOMB, L.M. [Holomb, L.M.], kand.tekhn.nauk; KARPOV, V.V.

Use of vat dyes for dyeing lavsan fibers. Leh.prom. no.1:70-72  
Ja-Mr '63. (MIRA 16:4)

1. Rubezhanskiy filial NIONiB.

AKHREMOVICH, Marta Bernardovna. Prinimal uchastiye PERSOV, M.P.;  
KARPOV, V.V., kand. tekhn. nauk; OMOLOVSKIY, G.Ye., red.

[Protection of the wooden structures of dwellings against  
wood-destroying pests] Zashchita dereviannykh konstruktsii  
zhilykh zdanii ot razrushitelei drevesiny. Moskva, Stroi-  
izdat, 1964. 89 p.  
(MIRA 17:6)

ABOZIN, V.G.; KARPOV, V.V.

Methods of investigating the acid-base characteristics of vat acids of indigo and thioindigo. Zhur. prikl. khim. 37 no. 4: 880-885 Ap '64. (MJRA 17:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KARPOV, V.V.; ABOZIN, V.G.

Effect of constituents on the dissociation constants and  
spectra of leucothiocindigoids. Zhur.frikl. khim. 37 no. 5s  
1165-1168 My '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KARPOV, V.V.

Signal programming of the temporary structure and sequence  
of actions as the premise of self-control in the formation  
and regulation of individual tempo. Vop. psichol. 10  
no.2:103-111 Mr-Ap '64. (MIRA 17:9)

1. Pedagogicheskiy institut, Yaroslavl'.

L 39491-65 SMT(1)/SMT(w)/EFF(n)-2/ENG(w)/SFR Pr-4/Pg-4/Pust  
ACCESSION NR: A65011719 UR/0096/64/000/011/0039/0064

AUTHOR: Karasina, E. S. (Candidate of technical sciences); Karpov, V. V.  
(Engineer); Martynov, A. V. (Engineer); Mintse, M. S. (Engineer)

TITLE: Investigation of heat exchange in the burner and superheaters during consumption of mazut

SOURCE: Teploenergetika, no. 11, 1964, 39-44

TOPIC TAGS: thermoelectric power, thermoelectric power plant, steam boiler, steam superheater, heat transfer, combustion chamber, combustion

ABSTRACT: The results are presented of an investigation of heat exchange in the combustion chamber of TP-170-1 and BKZ-210-140F boilers during combustion of sulfurous Bashkir mazut (petroleum residue). The test data on the total heat exchange with an  $\eta$  of 1.1 are described well by computed recommendations (Gurvich, A. M., Karasina, E. S., Mitov, V. V., Informatsimnoye pismo VNIIT and TeknT, 1961). Use of sprayers of various constructions, and also the conversion of three stages of burners into two and into one with a simultaneous increase of the productiveness of the sprayers does not exert an influence on the total heat exchange. During

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ACCESSION NR: AP5011719

a reduction of the surplus air to below 1.1 and to 1.04, the temperature of gases at the output of the combustion chamber of the BKZ-210-140F boiler exceeded that computed at approximately 100° C, which was caused by persistence of the combustion. The variation factor of the upper third of the burner of the BKZ-210-140F boiler amounted to  $y = 0.7$ . The maximum incident heat flow in the burner of the BKZ-210-140F boiler is distributed in the region of the sprayers on the side walls and at just the same level in the center of the front wall, and amounts to 470 kilowatt/m<sup>2</sup>. The average values of the coefficients of clogging for the superheaters are as follows: screen superheater  $\epsilon = 0.017 \text{ m}^{-2}$  degree/watt; second (hot) stage of the convective superheater  $\epsilon = 0.011 \text{ m}^{-2}$  degree/watt; first (cold) stage of the convective superheater  $\epsilon = 0.017 \text{ m}^{-2}$  degree/watt. Such high values of the coefficients of clogging indicate the necessity for cleaning the superheaters during consumption of manut. Orig.art.has 3 tables, 6 graphs.

ASSOCIATION: VNI BASHENERGO

SUBMITTED: 00

ENCL: 00

SUB CODE: TD, EE

NO REF Sov: 005

OTHER: 000

JPNIS

Card 2/2 *Re*

KARPOV, V.V.; KHIDEKEL', M.L.; GORBUNOVA, L.V.; RAZUVAYEV, G.A.

Steric hindrances and the course of oxidation of some phenols. Izv.  
AN SSSR. Ser. khim. no. 9:1717-1719 S '64. (MIRA 17:10)

1. Institut khimicheskoy fiziki AN SSSR i Gor'kovskiy gosudar-  
stvennyy universitet im. N.I.Lobachevskogo.

L-63611-65 EPR(c)/EPR/EWG(j)/EWG(f)/EMT(m)/EMG(m)/EWP(b)/T/EWP(t) Pg-L/Pg-L/Pg-L  
ACCESSION NR: AP5017963 IJP(c)/RPL UR/0062/65/000/006/1093/1096 42  
RM/NW/RNH/JD547.024+542.94 41

AUTHOR: Sklyarova, Ye. G.; Lukovnikov, A. F.; Khidekel', M. L.; Karpov, V. V.

TITLE: Phenoxy radicals as oxidation inhibitors and their interaction with hydroperoxides

SOURCE: AN SSSR. Izvestiya. Seriya Khimicheskaya, no. 6, 1965, 1093-1096

TOPIC TAGS: phenoxy radical, oxidation inhibitor, hydroperoxide, polypropylene

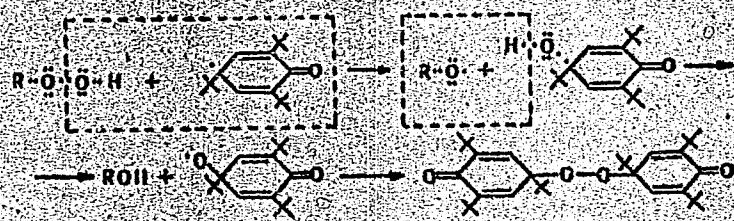
ABSTRACT: The inhibiting properties of some phenoxy radicals prepared by oxidizing 2,4,6-tri-tert-butylphenol (I), 2,4,6-triphenylphenol (II), and 4,4'-dihydroxy-3,5,3',5'-tetra-tert-butylidiphenolmethane (III) were tested on the oxidation of isotactic polypropylene, and were found to be quite effective. The kinetics of the reaction between 2,6-di-tert-butyl-4(3,5-di-tert-butyl-4-oxo-dicyclohexa-2,5-dienylidenemethyl)phenoxy (the "galvinoxyl" radical) and the hydroperoxide formed during the oxidation of polypropylene were studied by means of iodometry and ESR spectra. The reaction was found to be bimolecular and first-order with respect to the radical. The rate constants for 60.5, 45, and 35°C are 3.16, 1.5, and 0.79 L/mole·min, respectively, and the activation energy is

Card 1/3

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ACCESSION NR: AP5017963

10 kcal/mole. A study of the products of the reaction between tri-tert-butyl-phenoxyl with polypropylene hydroperoxide showed that they were identical to the products of oxidation of the radical by oxygen; hence, the hydroperoxide acts as an oxidizing agent. The reaction may be represented as follows:



A cage effect takes place in this case: the  $\text{RO}^{\cdot}$  radical detaches a hydrogen atom from the phenol formed; then two radicals dimerize, yielding a peroxide. Orig. art. has 3 figures and 4 formulas.

Card 2/3

I 63611-65 EPF(c)/EPF/EMG(1)/EMT(m)/EMG(m)/EMP(b)/T/EMP(t) Pg-4/Pg-4/Pg-4  
ACCESSION NR: AP5017963 IJP(c)/RPL UR/0062/65/000/006/1093/1096  
RM/WW/RWH/JD547.024+542.94

AUTHOR: Sklyarova, Ye. G.; Lukovnikov, A. F.; Khidekel', M. I.; Karapov, V. V.

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Card 1/3

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KARPOV, V.V. (Yaroslavl')

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(MIRA 18:6)

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nauchn. red.

[Manual for the designers of electrical systems for  
dwellings and public buildings] Spravochnik proektirovshchika-  
elektriku zhilykh i grazhdanskikh zdanii. Izd.2., perer. i  
dop. Leningrad, Stroizdat, 1965. 393 p. (MIRA 19:1)

BYAL'SKIY, A.B., nauchnyy sotrudnik; KARPOV, V.V., nauchnyy sotrudnik;  
Prinimali uchastie: RATNOVSKAYA, Ye.B., nauchnyy sotrudnik;  
GORDEYEVA, N.V., nauchnyy sotrudnik; KRAZIKOVA, N.N.; nauchnyy  
sotrudnik; KLEYMENOV, L.I., nauchnyy sotrudnik

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dyeing of fabrics with vat dyes. Tekst. prem. 25 no. 2:58-60  
Ag '65. (MIRA 10:9)

1. Nauchno-issledovatel'skiy institut organicskikh poluproduktov  
i krasiteley (NIOPIK) (for Byal'skiy, Karpov, Ratnovskaya, Gordeyeva,  
Krasikova). 2. Tsentral'ny nauchno-issledovatel'skiy institut  
kilopchatobumazhnoy premyshlennosti (for Kleymenova).

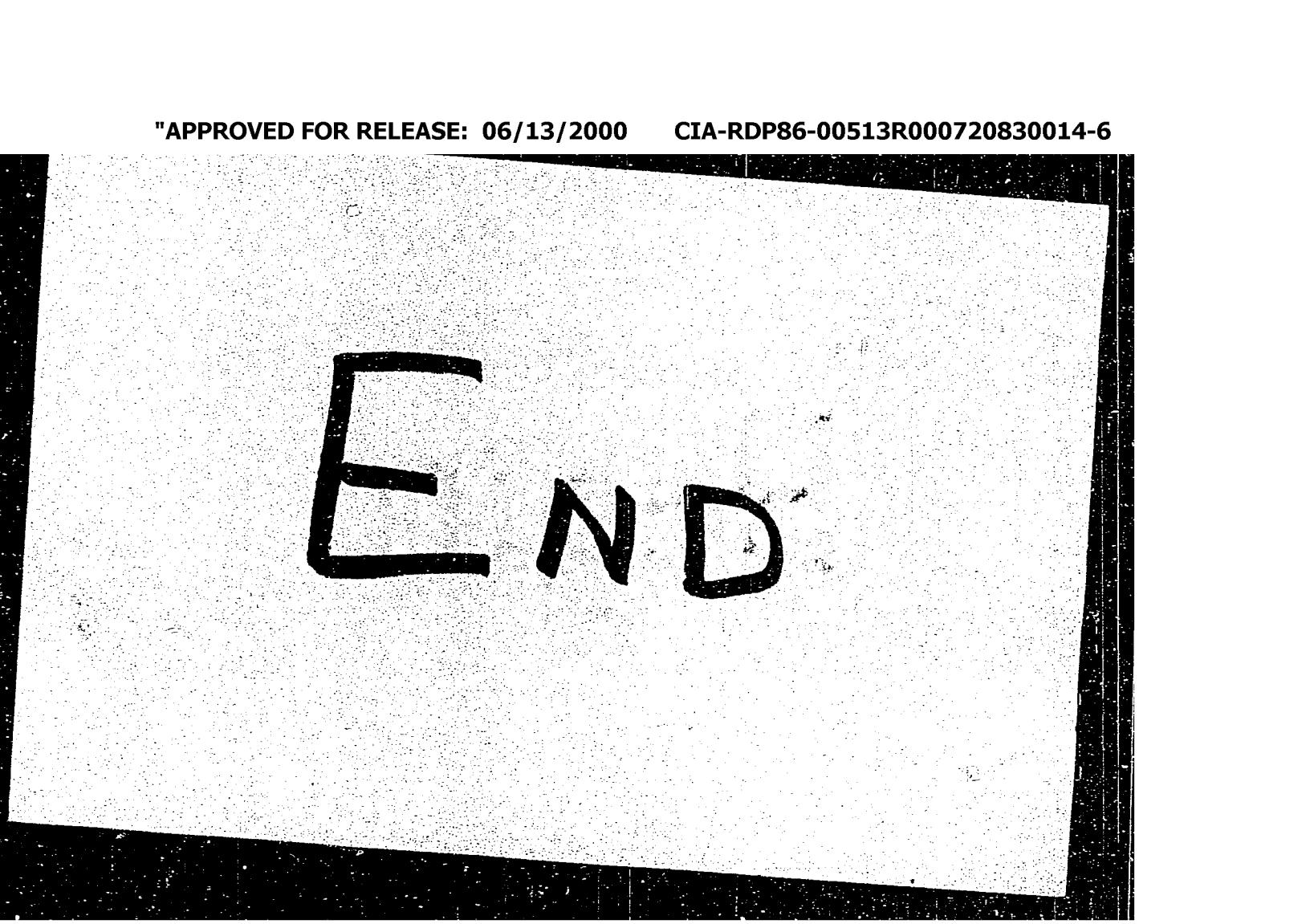
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KARLOV, ye. M.  
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KARPOV, V. V.

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